

Date: Thu, 29 Jul 93 09:45:16 PDT
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V93 #916
To: Info-Hams

Info-Hams Digest Thu, 29 Jul 93 Volume 93 : Issue 916

Today's Topics:

Alinco DJ-580 Intermod Reduction
ARRL Internet connection
Commercial Licenses?
Fixing the books
FT-221 Manual/copy needed
help wanted w/ homebrew TX
mod 4 kenwood 440s hf rig wanted
More on S-units and S-meters
Replacing ICOM 271/471 Ram Batteries...Better Do It!
SMD rework was(Re: Alinco DJ-580 Intermod Reduction)
S METERS AND MODERN TECHNOLOGY (2 msgs)
W9GR Low cost DSP kit ...

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 21 Jul 93 16:29:42 GMT
From: dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!
vixen.cso.uiuc.edu!uwm.edu!ogicse!hp-cv!hp-pcd!hpcvsnz!tomb@network.ucsd.edu
Subject: Alinco DJ-580 Intermod Reduction
To: info-hams@ucsd.edu

Tom Bodoh (bodoh@dggs.cr.usgs.gov) wrote:

: In article <226b9m\$Kqg@jericho.mc.com>, levine@mc.com (Bob Levine) writes:
: |> hmm, I don't think there's much difference between replacing a resistor
: |> and adjusting a potentiometer. Maybe they should have used potentiometers
: |> instead in the first place so engineering afterthoughts would be easier.

: |> Bob KD1GG
: |>
: --
: The big difference is that I haven't seen a miniature surface mount
: potentiometer. It's pretty tight inside the 580 and most other HT's...

Well, there are some small pots in the DJ-580. I tore into mine to adjust the DTMF xmt level; it was a bit "hot" for some of the local machines. The pots are small, though not quite as small as SMT resistors.

But as a designer, I must comment on the use of pots: I work pretty hard to _avoid_ them. They cost a lot! It's not the parts cost, it's the cost of tweaking them on the production line, and it's the cost of fixing things when someone later tweaks them when they aren't supposed to. We tend to use lots of digitally controlled tweaks, if tweaks are needed at all, and put them under processor control. Some things, though, slip through. Apparently, Alinco put the radio out, _then_ discovered that there was a "better way" which, fortunately, didn't take much in the way of changes. Was that "wrong"?? I sure don't think so! I've had the use of a very respectable radio for longer than I otherwise would have, and though the intermod is noticable and sometimes even a bit annoying, it sure doesn't make me unhappy that I bought the radio. In designing things, you have to decide when you've subjected them to a reasonable level of testing and have achieved a reasonable level of performance; if you kept working on them till you had completely optimized everything, you generally would have spent way too much on the development and lost lots of sales to your competitors for products that may be inferior to what you could have introduced at a reasonable time...and in doing that, you would have done your (potential) customers a disservice.

Stepping down from the soap box,

Cheers,
Tom -- K7ITM

Date: 28 Jul 1993 14:23:41 -0600
From: orca.es.com!cnn.sim.es.com!moons.sim.es.com!not-for-mail@uunet.uu.net
Subject: ARRL Internet connection
To: info-hams@ucsd.edu

I agree that the ARRL should be here, as they are promoting the hobby, adding to discussions, fueling flames, dousing flames, etc....

This discussion should end soon.

--

Douglas L. Datwyler, WR70
Evans & Sutherland Computer Corp.
preferred e-mail: datwyler@moons.sim.es.com

Date: 27 Jul 93 23:03:59 GMT
From: headwall.Stanford.EDU!nntp.Stanford.EDU!umunhum!paulf@RUTGERS.EDU
Subject: Commercial Licenses?
To: info-hams@ucsd.edu

Does anyone know when the FCC or proxy will resume commercial license exams?

--

--Paul Flaherty, N9FZX | "The National Anthem has become The Whine."
->paulf@Stanford.EDU | -- Charles Sykes, _A Nation of Victims_

Date: 28 Jul 93 12:44:42 est
From: psinntp!arrl.org@uunet.uu.net
Subject: Fixing the books
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, n4hy@tang.ccr-p.ida.org (Bob McGwier) writes:

>
>This would have to be a director at large. I personally would not want
>an inexperienced person representing my area. I would like representation
>for the newly licensed but not at my district's expense.
>
>Bob

Thanks for the comment. The US Constitution also discriminates against inexperience by setting a minimum *age* for the office of president. Discrimination is often a good thing; it's what keeps you from eating the yellow snow.

At base, yes: such requirements *do* bespeak fear of change. Fear of change, especially overrapid change, is often a good thing. (Transit-time effects can cause societal rupture. One importantly directive memo simply taking too long to circulate in a small business can screw things up because the entire apparatus doesn't move as one.)

In much of the world, experience (and therefore soundness of

decisionmaking) is (was?) largely held to vary directly with the age of the person in question. This isn't the place to talk much of why; it stems from the largely agrarian nature of societies in which Being Around Longer could be assumed to mean Knowing More About How The World Works. So it was (is?) a fair thing to be afraid of a leader who, out of his or her lack of life inexperience, might attempt to lead the led down a path *known through culture-wide experience* to be A Dumb Way to Go. *That* kind of change *is* something to fear.

In *this* culture, experience largely seems to be something to be shouted down and minimized. Age -- and, therefore, by association, experience -- conveys little automatic respect. Getting older is something you fear, older people are people you ignore and/or shun, and admitting that you may not have all the answers at age 25 seems just plain nuts. (This is not *my* view, as I hope you can see.)

Balancing the need to respond to positive, rapid change with the need not to write all of our standard texts on Magic Slates is a *tough* thing to do. Luckily, the ARRL's "four-year" rule can be changed through the representative democratic process if enough people are convinced that that's necessary.

At least no one has yet mentioned a possible, horrifically discriminatory truth: That the "four-year rule" also acts to disallow anyone under four years of age from being president of the ARRL. What an outrage!

Regards/WJ1Z

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American Radio Relay League		fax: 203-665-7531
225 Main St, Newington CT 06111 USA		net: dnewkirk@arrl.org

Date: Mon, 26 Jul 1993 22:19:02 GMT
From: nosc!crash!pnet01!tommy@ames.arpa
Subject: FT-221 Manual/copy needed
To: info-hams@ucsd.edu

Recently, I acquired a Yaesu FT-221 all-mode 2M rig which was damaged. In order to replace some of the parts, I need a copy of the schematics so I can get part numbers (the broken parts don't have numbers anymore).

Any help is greatly appreciated.

Tom
KD6OZK
tommy@pnet01.cts.com
Tom Williams on RadioSport! (619)279-3921
Answering machine (619)469-0831
Tom Williams	UUCP: {hplabs!hp-sdd ucsd nosc}!crash!pnet01!tommy
KD6OZK	ARPA: crash!pnet01!tommy@nosc.mil
Mr. Wizard	INET: tommy@pnet01.cts.com
"The only winning move is ... not to play." Joshua, WarGames	

quit

Date: 27 Jul 93 12:50:33 GMT
From: mercury.hsi.com!a3bee2!cyphyn!randy@uunet.uu.net
Subject: help wanted w/ homebrew TX
To: info-hams@ucsd.edu

furr@pilot.njin.net (Grover Furr) writes:

:
: I'd like to look into building a homebrew transmitter and receiver. It
: could be a very basic one, from a 50-year-old design. I think I'd
: learn better what really makes them work.
:
: Is there a group of hams who do this kind of thing? and who would
: provide encouragement? Either a group organized around building stuff
: (simple), or around building/restoring old radios?
:
: I've been thinking about this for a long time, but have been inspired
: by an article in the latest QST about a veteran ham who did it.
: However, HE knew how!
:
: Failing a group, then, a book with step-by-step instructions for a
: simple TX (even a very old book) would be welcome.
:
: Please email replies to:
:
: furr@saturn.montclair.edu
:
: or post to the group. And thanks.
:
:
: * * * * *
: Grover C. Furr

:
I sent email but in case it fails, I'll be here.

--

Randy KA1UNW If you get a shock while
 servicing your equipment, "Works for me!"
 DON'T JUMP! -Peter Keyes
 You might break an expensive tube!

Date: Thu, 29 Jul 1993 04:16:02 GMT
From: agate!usenet.ins.cwru.edu!neoucom.edu!wtm@ames.arpa
Subject: mod 4 kenwood 440s hf rig wanted
To: info-hams@ucsd.edu

It would be a bit difficult to change the antenna tuner on the TS-440S/AT while receiving because the AT unit samples the forward and reflected power with about 5 watts of CW driving the antenna.

I am pretty familiar with the radio and have the service manual. I am pretty convinced it isn't a practical modification. ... unless you want to blow out the 100 ohm resistors on the diode switches on the preselector. Having worked on a TS-440 where RF got back in the receiver, I know this is what happens. (No, it wasn't my own TS-440.)

And just what security concern prevents your friend from pursuing the question himself?

The Pink Artsci book has some mods, but they aren't particularly interesting as long as you use the radio for the function for which it is intended. Good luck.

The other thing to watch out for on the TS-440 is the rubber potting compound in the VCO tends to go resistive and blow out the varactor and FET. If you aren't going to run the radio mobile, you can probably pick out the rubber goop and leave well enough alone. You'll know the VCO is down if the rig shows the frequency for about one second, then blinks to only dots in the display. The switching diodes in the preselector can also become leaky and cause similar symptoms. Kenwood does have a couple of service bulletins.

--

Bill Mayhew NEOUCOM Computer Services Department
Rootstown, OH 44272-9995 USA phone: 216-325-2511
wtm@uhura.neoucom.edu amateur radio 146.58: N8WED

Date: 29 Jul 93 13:53:03 GMT
From: news-mail-gateway@ucsd.edu
Subject: More on S-units and S-meters
To: info-hams@ucsd.edu

Roy wrote:

>Following my recent posting regarding S-meters, Doug MacKintosh, VE6BC
>(doug@ve6bc.ampr.ab.ca) emailed me this info:

>>On the radios I've worked on (Yaesu, Heathkit, Radio Shaft come to mind),
>>the manuals have all spec'd that S9 shall be indicated when there is 50uV of
>>signal at the antenna input. This seems to be some kind of de-facto standard.

>I don't have a service manual for my Icom IC-730 but found no mention of a
>spec for S9 level in the instruction manual. Out of curiosity, I measured
>the signal required for an S9 indication on this rig. Sure enough, it was
>very close to 50 uV on all bands I measured (80, 40, 20, 15, and 10).
>(My measurement accuracy was a few percent. S9 was within a dB of 50 uV
>when accuracy was considered.) This was true for LSB, USB, and CW modes,
>preamp off. The narrow CW filter increased the signal required for S9 to
>about 100 uV.

Roy, that is terrific, but unfortunately it is quite the exception and
not the rule! Most rigs don't come anywhere near that close, especially
on more than one band!

>Based on Doug's experience, it looks like the manufacturers are holding a
>reasonably constant S9.

I don't believe testing one rig could possibly confirm such a decision!
There have been several postings where guys have tested various equipment
and found just the opposite!

>One last comment. Some posters have referred to a "standard" S-unit on the
>basis of some organization or other declaring it to be so. This is
>reminiscent of a law - actually passed - which declared pi to be equal to
>exactly three. (See "The History of Pi" by Petr Beckmann.) I suppose this

Well, thru this discussion we've discovered that the "standard" WAS
apparently proclaimed by a single organization like you said, but it
was over forty years ago. Since that time it has not been universally
accepted, as David Newkirk of ARRL reminded us, but it is at least
acknowledged by quite a number of manufacturers. The problem has been
that they usually don't bother actually attempting to keep their rigs
even close, for the most part. Those that do acknowledge the 50uv for

S9 usually recommend setting the meter to that indication on a particular band and leave it at that.

I tend to agree with the presentation that Gary made regarding the how and why of the 50uv for S9 determination was made some 40 plus years ago. It makes sense, considering the equipment available at the time, etc. "Splicing" the S-scale to the dbm scale (which is the S-scales real reference) at that point made sense, and I accept the explanation as being totally reasonable. The problem, I believe, has always been that the implementations have usually not been reasonably accurate and true to the reference. Hence, we have come to believe, again as David suggested, since the standard has never been universally applied, that there really isn't a standard IN PRACTICE!

Someone (was it really Collins Radio Co. as Gary suggested from his memory?), a long time ago, attempted to create a reasonable standard that would associate some real world reference to the reporting system amateurs use to exchange signal reports. Doing so would hopefully permit the RST system to convey useful information regarding the strength at which a signal was being received relative to an actual real world absolute value. The universal dbm scale. Unfortunately, the implementations have not been true to that reference, and we have come to accept that as being the way it is!

But, the fact is, it doesn't HAVE to be that way, as we've seen in this discussion. We've seen a lot of good examples of how it COULD be made to be more accurate than what we've come to accept. We've probably all learned a thing or two from the discussion as well, and that's good!

I know I have!

73's
Paul
WB2OYC
ar..

>Roy Lewallen, W7EL
>royle@tekig6.pen.tek.com

Date: 28 Jul 93 17:41:50 EDT
From: psinnntp!arrl.org@uunet.uu.net
Subject: Replacing ICOM 271/471 Ram Batteries...Better Do It!
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, jwa@tellabs.com (John W. Albert) writes:

>>>

>>>John Mcleod N6RCD.

>A company called Willco Electronics sells a memory board that
>has the important data stored in ROM. When the battery fails,
>the radio won't die, you just lose the memories. The board
>also increases the frequency limits and has 1024 memories.
>

Has anyone on here actually done this mod? I have an older
IC-751A. Everytime I turn it on, I wonder if this is the
time it

--

jkearman@arrl.org

Date: 22 Jul 93 16:30:05 GMT

From: hp-cv!hp-pcd!hpcvsnz!tomb@hplabs.hpl.hp.com

Subject: SMD rework was(Re: Alinco DJ-580 Intermod Reduction)

To: info-hams@ucsd.edu

Gary Coffman (gary@ke4zv.uucp) wrote:

(after an initial post about how easy surface mount rework is,
replying to a comment about how hot air can cause problems on
adjacent components...)

: Yes, but it's relatively easy to control the hot air flow. There are
: two methods generally in use. The first is sheet metal shrouds of
: various shapes to direct the air. The other, and the one I prefer,
: is to use modelling clay to build a heat dam around the part to be
: reworked. The clay is easy to apply, peels right off when done, and
: is reusable.

Hmm. Now it's sounding not quite so easy. I have to build a heat
dam of modeling clay just to remove a part? Actually, I tend to agree
with Gary that smt work is pretty easy. But the equipment that makes
it easy isn't cheap and isn't likely to be found in home hobby
workshops. We use Metcal irons here; they have a variety of
easily changed tips that let you remove various components _fairly_
easily. It's not even too hard to put down SOIC and PLCC ICs (0.05"
lead spacing) and assorted passive parts with a fairly standard
Weller iron, but when you get to fine-pitch parts, it gets a lot
tougher. Even our very carefully-controlled manufacturing processes
have been known to screw up on rare occasion ;-)

Date: 29 Jul 93 13:43:40 GMT
From: news-mail-gateway@ucsd.edu
Subject: S METERS AND MODERN TECHNOLOGY
To: info-hams@ucsd.edu

Bob wrote:

> By the way, I measured my Kenwood TS-430S S-meter characteristics
> once and was surprised that it actually follows the 6-dB "standard"
> pretty well (considering its consumer electronics and not a test
> instrument).

Yes, sounds good and interesting to note that many former owners of the 430 think the receiver is not quite up to measure, Hi! Those are probably the type that figure the higher the S-meter goes the more sensitive the radio is, har! As I recall the 430, I found it to be quite acceptable, and a fun little rig. Performance was reasonable, but suffered some on 80 & 160 in the tough stuff. Otherwise, a nice little box!

> More recently, I measured 4 or 5 different FM VHF/UHF rigs (handhelds
> and mobile transceivers). The typical "S-unit" size was 1 to 2 dB.
> I believe this is driven by the FM nature of the beast, but I haven't
> given it any further thought.

Well, I think you're on to something about the FM mode Bob. It should only take a few uvolts of RF to fully quiet the radio, which is what the meter seems to be telling you too! Once the FM detector is fully saturated, more RF on the input doesn't do any good. It's already quieted all the way! So, seems like your meter is set up properly for the MODE! Maybe on FM rigs we should call it a mode meter, not S-meter, huh?

The S-meters we have on HF rigs are pretty poor, as absolute value indicators for the most part, but FM rigs are ludicrous! I had one that indicated S9 +40db with only 20uv injected at the antenna jack! If S9 is supposed to be 50uv, 40db over should be 5000uv (5mv)! I can't even figure the percentage error in something like that, but the meter was indicating 250X's more signal than was really there! I don't know about how you feel regarding something like that, but its not acceptable to me to call it an S-meter! 'Cause its not even in the same universe.

> The interesting thing is that just a few dB of signal change will
> make your typical repeater user think the repeater's power level
> have changed dramatically. ("The repeater's output is down 2 S-units,
> Jed, so it must be 12 dB lower than normal.")

Yes, I know what you mean! Hi! Seems that it doesn't take very long for most hams to forget all they needed to learn to get their ticket! That is, if they ever actually LEARNED it in the first place, Hi!

Over the years I've come to believe that many of us don't understand much about what's really going on with this stuff. We tend to fool ourselves sometimes too, convincing ourselves we know, when we really don't! I believe it shows up a weakness in the system used to "qualify" to be an amateur. A lot of folks memorize the test stuff and just keep taking the darn thing till they get a set of questions they MEMORIZED! There's a big difference between understanding what's going on, and memorizing the darn questions and answers!

I know some things pretty well, and have a bit of an advantage due to a strong technical training and experience background. But I also know that there's an awful lot going on that I just don't know hardly at all! Some guys can't say that tho' and think maybe it'd be a sign of weakness if they showed they didn't know. So they just kinda' say things in such a way that they give themselves away sometimes! Like the guys on the repeater in your example. They showed that they really don't have a clue! But I bet you'd get a fat lip if you tried to tell'em that, huh? Hi!

73's
Paul
WB2OYC
ar..

Date: 29 Jul 93 13:46:18 GMT
From: news-mail-gateway@ucsd.edu
Subject: S METERS AND MODERN TECHNOLOGY
To: info-hams@ucsd.edu

Paul, OH3LWR wrote:

>Why not calibrate directly in dBm or even dBW and you don't have to worry
>about what impedance is used.

Paul, I thought that dbm was referenced to 1mw across 50 ohms. Is that not right?

>In the 70's there was a lot of fuss about how to measure the sensitivity
>of a Hi-Fi receiver. Different standards used 50/60/75/240/300 ohms
>unbalanced or balanced and the voltage varied accordingly. It was
>decided to measure the input power in femtowatts (1E-15 W) and

Interesting!!

This is similar to what was suggested by Gary and Kevin. Good idea!

>You could calibrate your signal meter in Kelvins or dBK :-)

^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^

△△△△△△△△△△

Probably makes better sense than what goes on today! The R is kinda subjective, and the S is supposed to be indicative of the level as we have discussed along the way on this topic. The S part of the report has become somewhat meaningless due in large part because most of us accept the fact that the meter provided is so inaccurate. The fact that it COULD be made to be more meaningful is what we've been chatting about, and we've seen some pretty good ideas on how it might be done too! Including yours.

That's why I really like Kevin's suggestion of the dbuv meter that used to be so widely used. Your suggestion about the dbm direct is similar (the one is directly tied to the other of course)! Either does the job better than a S-(illy) meter. At least the references are clearly defined and absolute!

Does anyone know if commercial/military gear of recent vintage still uses the dbuv on its signal level indicator? I do know that HF SW broadcasters prefer knowing the uv level of the signal they deliver to you if you submit reports.

73
Paul
WB20YC
ar..

Date: 28 Jul 1993 22:46:04 GMT
From: swrinde!gatech!concert!inxs.concert.net!rock.concert.net!
mikewood@network.ucsd.edu
Subject: W9GR Low cost DSP kit ...
To: info-hams@ucsd.edu

In article <1993Jul28.102550.5015@uoft02.utoledo.edu> mohan@tulip.es.utoledo.edu writes:

>Hello,
>I read the article by W9GR in QST about DSP application in amateur radio.
>Any body here actually built the circuit have comments about it ?
>Also there was an advertisement for a "W9GR DSP II" in July 1993 QST, any idea
>what improvements have been in the project since the article was published
>in Sept 1992.
>
>Thanks :)
>--mohan
>=====

>+ Mohanakrishna Pakkurti + mohan@jupiter.cse.utoledo.edu +
>+ HOME: 2239 University Hills Blvd #204, Toledo OH 43606. Phone:(419)536-9073 +
>=====

I built it and was satisfied with the unit until the new Timewave DSP-59 came along. The DSP-59 was \$300 so it is an entirely different price class.

The W9GR kit does not have as great a dynamic range so you have to limit the input signal level manually or with an add-on circuit but it is very effective in both the noise reduction and bandpass filter modes.

Now that I have the Timewave I'd like to sell the W9GR board. I have the unit with all the filters in the EPROM on the dsp chip as well as the individual EPROM versions.

Any offers on the whole package?

Mike Wood Internet: mikewood@rock.concert.net
The Signal Group
P.O. Box 1979 ***Avoid company disclaimers by owning the company ***
Wake Forest, NC 27588

Phone: 919-556-8477 Fax: 919-556-0115 Ham call : NT40

End of Info-Hams Digest V93 #916
